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**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

PTO-90C (Rev. 2/95)

1- File Copy

*U.S. GPO: 2000-473-000/44602

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/363,868 | SAKAMOTO, MICHIAKI | |
| | Examiner | Art Unit | |
| | Quynh-Nhu H. Vu | 2871 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) 1-39 is/are pending in the application.

4a) Of the above claim(s) 26-39 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-25 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

15)☒ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18)☒ Interview Summary (PTO-413) Paper No(s). 9 .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other: .

## DETAILED ACTION

1. Applicant's election without traverse of Group I, Species A in Paper No. 8 is acknowledged.

2. Claims 26-39 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 8.

### *Drawings*

3. Figures 12A-B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the recited feature "common electrode is formed on the color filter" of claims 3 and 12 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

5. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the recited feature "liquid crystal before the voltage is applied thereto is orientated substantially vertically to the first substrate" of claims 10 and 25 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the recited feature "common electrode is formed on overcoat layer" of claims 4 &13; and the recited feature "interlayer separation film is formed on the pixel electrode, and the common electrode is

formed on the interlayer separation film" of claims 5 & 14 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

7. The figure 9 is objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the recited features "the common electrode is formed so that the thin film transistor, the scan signal electrodes and the video signal electrodes are hidden when viewed from the side of the second substrate" of claims 17-18 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

8. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the recited feature "optically negative compensation film and an optically positive compensation film are disposed between the first or second substrate and a polarizing plate" of claims 19, 24-25 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

9. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the recited feature "a pre-tilt angles are beforehand formed along two directions/in any one of directions in which liquid crystal molecules are felled when a voltage is applied" of claims 20-21 and 25 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

***Specification***

10. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not disclose the feature "common electrode is formed on overcoat layer" as recited claims 4 &13; and the feature "interlayer separation film is formed on the pixel electrode, and the common electrode is formed on the interlayer separation film" as recited claims 5 & 14.

11. Claims 15, 17-18 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 10 is belong to Fig. 9 and in the specification on pages 28-31. Additionally, claims 15, 17-18 are dependent on claim 10. However, the recited feature "common electrode commonly uses a part of the common electrode wire" of claim 15; and the recited features "common electrode is formed so that the thin film transistor, the scan signal electrodes and the video signal electrodes are hidden when viewed from the side of the second substrate" of claims 17-18 are not shown in Fig. 9 nor the specification on pages 28-31.

***Claim Rejections - 35 USC § 112***

12. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

13. Claim 12 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. There is nowhere in the specification and the drawing show the combination between the limitation "liquid crystal before the voltage is applied thereto is orientated substantially vertically to the first substrate" of claim 10; and the recited feature "common electrode is formed on the color filter layer" of claim 12. According to the specification on page 30, the limitation "liquid crystal before the voltage is applied thereto is orientated substantially vertically to the first substrate" is belongs to the Fig. 9. Likewise, in Fig. 9, the common electrode is formed on the light shield portion (911) but not formed on the color filter.

14. Claims 15, 17-18 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. There is nowhere in the specification and the drawing show the combination between the limitation "liquid crystal before the voltage is applied thereto is orientated substantially vertically to the first substrate" of claim 10; and the recited feature "common electrode commonly uses a part of the common electrode wire" of claim 15; and the recited features "common electrode is formed so that the thin film transistor, the scan signal electrodes and the video signal electrodes are hidden when viewed from the side of the second substrate" of claims 17-18.

Claims 19-21 and 24- 25 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as

to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Nowhere in the specification does it disclose "a pre-tilt angles are beforehand formed along two directions/in any one of directions in which liquid crystal molecules are felled when a voltage is applied" of claim 20-21 and 25. In addition, the applicant does not disclose how to "forming an optically negative and positive compensation film between the first and second substrate and a polarizing plate, and forming, by a rubbing method, pre-tilt angles along two directions in which liquid crystal molecules are felled when a voltage is applied to said compensation film". The specification on pages 9-10, discloses the optical compensation film. However, the specification does not disclose the method as mentioned above. Additionally, the compensation film is located outside of liquid crystal layer. How can "pre-tilt angles along two direction in which liquid crystal molecules being felled when a voltage applied to the compensation film"? Also, one of ordinary skill in the art would not be able to know how to carry out the method as mentioned above.

15. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. Claims 4 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. According to Figs. 1, 4 and 9, "common electrode is formed on said overcoat layer" is misdescriptive. According to the specification and drawings, the overcoat layer is formed on common electrode.

For examining purpose, the above feature is interpreted as "the overcoat layer is formed on common electrode".

17. Claims 5 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The feature "the interlayer separation film is formed on said pixel electrode, and said common is formed on said interlayer separation film" is misdescriptive. According to the specification and drawings, the interlayer separation film is formed on common electrode, and the pixel electrode is formed on the interlayer separation film.

For examining purpose, the above feature is interpreted as "the interlayer separation film is formed on common electrode, and the pixel electrode is formed on the interlayer separation film."

***Claim Rejections - 35 USC § 103***

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. Claims 1-2, 4-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al. [US 6,198,520] in view of Ohta et al. [US 6,111,625] and Matsuyama et al. [US 5,689,318].

Kondo et al. disclose in Figs. 2-4 & 8 a liquid crystal display device having a transparent first substrate (1), a transparent second substrate (1'), and a liquid crystal layer (10) and a color filter layer (5) sandwiched between the first and second substrates, comprising: the color filter layer (5) disposed on the first substrate; the liquid crystal layer disposed between the color filter layer and the second substrate; plural scan signal electrodes, video signal electrodes for crossing the scan signal electrodes in a matrix form and plural thin film transistors formed in association with the crossing points between the scan signal electrodes and the video signal electrodes provided on the first substrate below the color filter layer (see Fig. 8); at least one pixel (3) formed in each of areas surrounded by the plural scan signal electrodes and the video signal electrodes; each pixel provided with a common electrode which is connected over plural pixels; and said common electrode (2) and the pixel electrode (3) disposed between the color filter and the liquid crystal layer; wherein the common electrode and the pixel electrode are disposed in different layers through an interlayer separation film (4), and wherein electric field having a component which is dominantly parallel to the first substrate is produced is the liquid crystal layer by applying a voltage across the common electrode and the pixel electrode, and liquid crystal before the voltage is applied thereto is orientated substantially in parallel to the first substrate (Fig. 4a &c).

Regarding claim 2, wherein at least one of the common electrode and the pixel electrode is formed of a transparent conductive film (col. 7, line 65 - col. 8 and line 7).

Regarding claims 4-5, an overcoat layer (7) for protecting the color filter (5) is formed on the color filter layer, the overcoat layer is formed on common electrode (2), the interlayer separation film (4) is formed on the common electrode (2), and the pixel electrode (3) is formed on the interlayer separation film (112).

Regarding claim 7, a plurality of the common electrodes and the pixel electrodes are arranged in the pixel.

Ohta et al. disclose in Fig. 1 that a pixel electrode is connected to the corresponding thin film transistor.

Matsuyama et al. disclose that an interlayer separation film (PSV2) is formed of a transparent insulating material for improving the heat resistance of the color filter (col. 3, lines 7-8).

Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ the pixel electrode being connected to the corresponding thin film transistor, for the benefit of reducing the cross-talk that occurs in the vertical direction. Also, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the interlayer separation film made of transparent insulating material, as taught by Matsuyama et al., for improving the heat resistance of the color filter.

20. Claims 6, 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al. [US 6,198,520] in view of Ohta et al. [US 6,111,625] and Matsuyama et al. [US 5,689,318] as applied to claim 1 above, and further in view of Zhang et al. [US 6,097,454].

Kondo et al., Ohta et al. and Matsuyama et al., as applied to claim 1 above, disclose all claimed subject matter except for the limitations that the common electrode is formed so that the thin film transistor, the scan signal electrode and the video signal electrodes are hidden when viewed form the side of the second substrate.

Zhang et al. disclose in Figs. 3A-E a common electrode (39) being formed so that a thin film transistor, scan signal electrodes (34) and video signal electrodes (37a) being hidden when viewed from the side of second substrate.

Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ the common electrode, as taught by Zhang et al., for the benefit of preventing the entry of an unnecessary signal caused when the gate wiring and the source wiring function as an antenna (col. 10, lines 16-21).

21. Claim 10-11, 13-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al. [US 6,198,520] in view of Ohta et al. [US 6,111,625], Matsuyama et al. [US 5,689,318] and Kim et al. [US 6,005,650] (or Applicant's Prior Art JP 10-186351 cited by applicant).

Kondo et al., Ohta et al. and Matsuyama et al., as applied rejection for claim1 above, disclose all claim subject matter except for the limitation that the liquid crystal is orientated substantially vertically to the first substrate before the voltage is applied.

Kim et al. disclose in Fig. 2A (or Applicant's Prior Art disclose in Fig. 1A) that the liquid crystal is vertically to the first substrate before the voltage is applied.

Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ the liquid crystal being vertically to the

substrate for the benefit of increasing the response speed of LCD (Kim et al., col. 5, lines 12-14).

22. Claims 15, 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al. [US 6,198,520] in view of Ohta et al. [US 6,111,625], Matsuyama et al. [US 5,689,318] and Kim et al. [US 6,005,650] as applied to claim 10 above, and further in view of Zhang et al. [US 6,097,454].

Please see the rejection of claims 6, 8-9 above.

23. Claims 19-22 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al. [US 6,198,520] in view of Ohta et al. [US 6,111,625], Matsuyama et al. [US 5,689,318] and Kim et al. [US 6,005,650] as applied to claim 10 above, and further in view of Xu et al. [US 6,023,317] and Ishikawa et al. [US 5,677,747].

Kondo et al., Ohta et al., Matsuyama et al. and Kim et al., as applied rejection for claim 10 above, disclose all claim subject matter except for the limitation that an positive and negative compensation film disposed between the first and second substrate and a polarizing plate.

Xu et al. disclose in Figs 1-3 an optically negative compensation film (4 or 13) and an optically positive compensation film (2 or 14) being disposed between the first or second substrate and a polarizing plate to improve viewing characteristics (see abstract).

Ishikawa et al. disclose in Fig. 3b, 4a a pre-tilt angle formed by rubbing method in which liquid crystal molecules felled when a voltage applied.

Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ the optical positive and negative compensation film disposed between the substrate and the polarizing plate, as taught by Xu et al. and Ishikawa et al., for improving viewing characteristics.

24. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al. [US 6,198,520] in view of Ohta et al. [US 6,111,625], Matsuyama et al. [US 5,689,318], Kim et al [US 6,005,650] and Murai et al. [US 6,160,604].

Kondo et al., Ohta et al., Matsuyama et al. and Kim et al., as applied rejection for claim10 above, disclose all claim subject matter except for the limitation that an organic material comprising monomers or olygomers into liquid crystal, injecting the liquid crystal into the gap between the first substrate and the second substrate.

Murai et al. disclose that the LCD contains a small amount of organic polymer, injecting the liquid crystal into the gap between the first and second substrate (col. 7-col.9, lines 26).

Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to contain monomer or oligomer polymer, as taught by Murai et al., to stabilize the rising directions of the molecules (col.7, lines 27-32).

***Allowable Subject Matter***

25. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base

claim and any intervening claims. In particular, the prior art of record fails to disclose or suggest the liquid crystal display device including the common electrode being formed on the color filter layer, the interlayer separation film being formed on the common electrode, and the pixel electrode being formed on the interlayer separation film with the recited connections and operation set forth in this claim.

***Conclusion***

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yamada et al. [US 5,831,704] disclose rubbing direction of the alignment layer are identical with each other, but also are formed in the case where the two directions differ from each other.

Kondo et al. [US 5,598,285] disclose that a rubbing processing to produce a pre-tilt angle (col. 13, lines 53-55).

Murai et al. [US 6,160,604] disclose in Figs. 1-2 pre-tilt angles along two directions when rubbing method applied.

Shimada et al. [US 5,852,485] disclose a common electrode made of metal and being formed so that a TFT hidden when viewed from the side of upper substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quynh-Nhu H. Vu whose telephone number is 703-305-0850. The examiner can normally be reached on 7:30-5:00 (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Sikes can be reached on 703-308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

QNV
April 23, 2001

William L. Sikes
Supervisory Patent Examiner
Technology Center 2800